

Remarks

In Claim 1 Applicant claims an extruded, melt-mixed thermoplastic superabsorbent polymer blend that comprises two components. One component is a superabsorbent polymer. The other is a particular type of thermoplastic resin. The thermoplastic resin must comprise a functional group that interacts ionically or covalently with the superabsorbent polymer.

Applicant illustrates what the phrase “interacts ionically or covalently” means at page 5, lines 22 – 31. In one example, a thermoplastic resin having an acyl group undergoes nucleophilic attack resulting in a substitution reaction in which a basic group from a superabsorbent polymer replaces a leaving group (e.g. –OH, –Cl, –OOCR, –NH₂, or –OR) in the thermoplastic resin. In a second example, a thermoplastic resin that contains a carbonyl group undergoes nucleophilic attack, gains a proton and adds a basic group from the superabsorbent polymer. In either case, a reaction product of such a reaction forms a uniform and/or co-continuous non-separating polymer blend.

Applicant defines “extrudable thermoplastic superabsorbent polymer blend composition” at page 7, lines 21 – 29. Applicant focuses upon preferred attributes or characteristics at page 7, lines 27 – 29.

In discussing Table I at page 11, lines 18 -21, Applicant notes that many blends can be melt blended in some fashion and pressed into a shape or molded into a sheet or an article. If, however, they do not meet one or more of the criteria noted at page 7, lines 21 – 29, they are designated as “not” extrudable.

Applicant presents 49 comparative examples that do not yield an extrudable blend and therefore do not meet the requirement of Claim 1 in Comparative Examples A –WW. Applicant invites the Office to consider Comparative Example EE through LL, which show use of various styrenic block copolymers. None of the styrenic block copolymers meet one or more criteria from page 7, lines 21 – 29. As such, they do not fall within the scope of Claim 1.

Applicant specifies certain thermoplastic resins in Claim 7 and teaches still more, both generically and specifically in the specification at page 5, line 32 through page 6, line 33. The Office will note that neither Claim 7 nor the cited portion of the specification include an elastomeric polymer in general or a block copolymer, especially a styrenic block copolymer

in particular.

As the Office notes, U.S. Patent 4, 318, 408 to Korpman discloses a product that comprises a matrix of an elastomeric polymer that bears a uniformly dispersed particulate, water-insoluble, water-swelling organic polymer absorbent. In column 1, lines 53 – 58, Korpman expands upon the previous statement which paraphrases the Abstract by characterizing the organic polymer absorbent as being at least partially embedded in the elastomeric matrix. Korpman disposes particulate organic polymer absorbent on the surface or throughout the matrix, preferably in such a manner as to partially embed the particles in the matrix according to column 2, lines 51 – 60.

Korpman discusses matrix polymers at column 8, lines 15 through column 9, line 63. The matrix is, per column 8, lines 15 – 20, an elastomer, preferable a thermoplastic elastomeric block copolymer, but possibly natural rubber or a synthetic rubber such as a styrene-butadiene rubber. The block copolymers include styrene-butadiene-styrene (SBS) or styrene-isoprene-styrene (SIS) block copolymers.

Korpman provides for alloys of thermoplastic block copolymers and copolyester at column 9, lines 40 – 63. Korpman requires at least 55 weight percent block copolymer and no more than 45 percent co-polyester in such alloys.

Korpman suggests that blends of SIS block copolymer and a polyacrylate powder (Example I) or a SBS block copolymer and a polyacrylate powder (Example II) can be blended, pelletized and extruded to form a film. Korpman does not, however, teach or suggest that the polyacrylate powder and either the SIS block copolymer or the SBS block copolymer interact either ionically or covalently. Korpman also does not teach whether such blends generate undesirable processing problems such as plugging or die face build up.

The SIS and SBS block copolymers disclosed by Korpman, while not of the same commercial designation as those of Applicant's Comparative Examples EE, FF, GG and JJ-MM, are in many cases very similar to those in such Comparative Examples and, in the case of Comparative Example HH and II, form part of the KRATON™ product family.

The SIS and SBS block copolymers of Korpman do not meet Applicant's definition of "extrudable thermoplastic superabsorbent polymer blend composition". As such they fall outside the invention embodied in Claims 1 – 11 and 32. Applicant respectfully suggests that

a primary reason block copolymers in general do not meet Applicant's criteria is that they contain no functional group that interacts ionically or covalently with a superabsorbent polymer. Korpman neither teaches nor suggests that matrix polymers should, or even might, be functionalized.

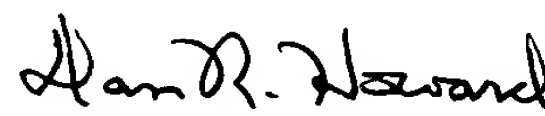
Korpman fails to anticipate Applicant's claimed invention. In order to anticipate a claim, a single reference must disclose each and every element of a claim. Korpman fails that test in two instances. First, Korpman does not teach or suggest and does not provide, either explicitly or inherently, thermoplastic polymers that comprise a functional group which interacts ionically or covalently with a superabsorbent polymer. Second, Korpman does not provide a composition, or teach or suggest preparation of a composition, that would meet Applicant's definition of an extrudable thermoplastic superabsorbent polymer blend composition.

Korpman does not render Claim 33 obvious for the same response that Korpman fails to anticipate Claims 1 – 11 and 32, especially Claim 32. If a reference fails to teach or suggest a means to render an independent claim obvious, it cannot render obvious a claim that depends from, and necessarily incorporates all of the limitations of, that independent claim.

Applicant respectfully asks the Office to withdraw the rejections of Claims 1 – 11, 32 and 33 and issue a notice of allowance at an early date.

As Applicant files this response within the shortened statutory of three(3) months, adds no claims and files no petitions or requests that generate fees, Applicants respectfully submits that no fees are due. If Applicant errs in this submission, please charge the appropriate fee to Deposit Account Number 04-1512 and advise Applicant's attorney of the amount of, and basis for, such fees.

Respectfully submitted,



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